

METHOD AND APPARATUS FOR
ENCAPSULATING ARTICLES BY STENCIL PRINTING

Abstract of the Invention

The present invention is a method and apparatus for encapsulating
5 semiconductor dies and other devices using stencil printing techniques. The apparatus
includes a pressurized vessel for containing encapsulation material, the apparatus
having a head including a slot through which the encapsulating material escapes into
the apertures of the stencil. The head is angularly adjustable relative to the stencil and
thus relative to the streets between the semiconductor dies that are in the apertures of
10 the stencil so that the head can be adjusted to the optimal angle for filling both the
vertical and horizontal streets between the dies and minimizing the creation of voids in
the encapsulant. The method involves encapsulating semiconductor dies using a
pressurized stencil printing machine having a slot through which the encapsulating
material is forced into the apertures in the stencil and wherein the slot is at a large
15 angle relative to both the vertical and horizontal streets. Preferably, the angle is
between 5 and 50 degrees. More preferably, the angle is 45 degrees to both the
horizontal and vertical streets. Alternately, the angle is 15 degrees to one of the sets of
streets.